NORTH CAROLINA
Department of Transportation









Draft 2020-2029 STIP Update

David Wasserman, PE
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Division of Planning and Programming
February 2019

Agenda

- Draft 2020 – 2029 STIP Update:
  - David Wasserman, PE, Western STIP Manager
- Project Delays in the Draft 2020 – 2029 STIP:
  - Van Argabright, PE, Director of Planning and Programming
- Costs and Scope Improvements:
  - Derrick Lewis, PE, Feasibility Studies Unit Head

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Draft 2020-2029 STIP

David Wasserman, PE
Western STIP Manager
Division of Planning and Programming

February 2019

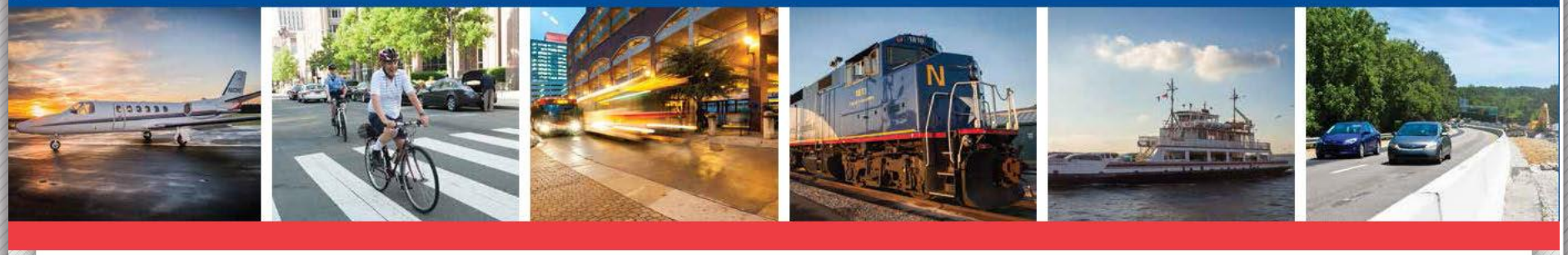
"Article 14B.

Strategic Prioritization Funding Plan for Transportation Investments.

§ 136-189.10. Definitions.

The following definitions apply in this Article:

STATE TRANSPORTATION IMPROVEMENT PROGRAM (STIP)



2020-2029

2019

June 2019

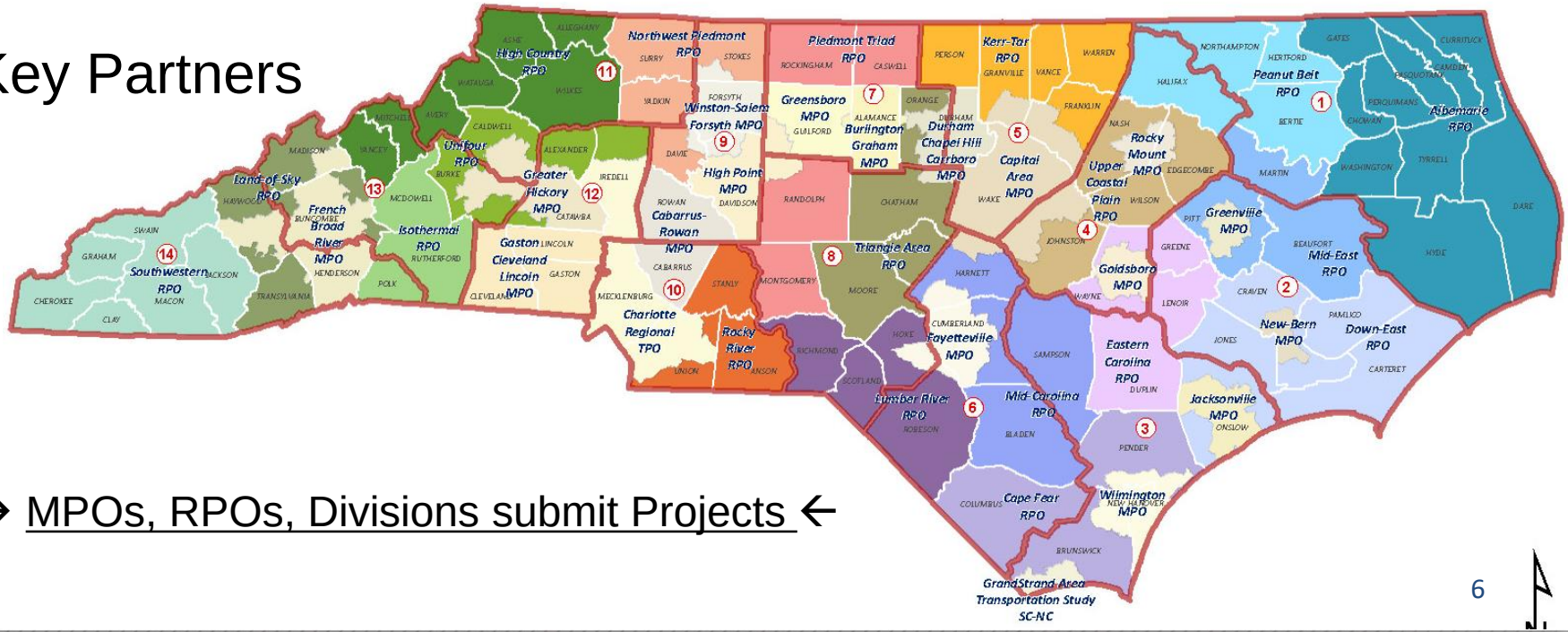
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Background

NCDOT funds six modes of transportation

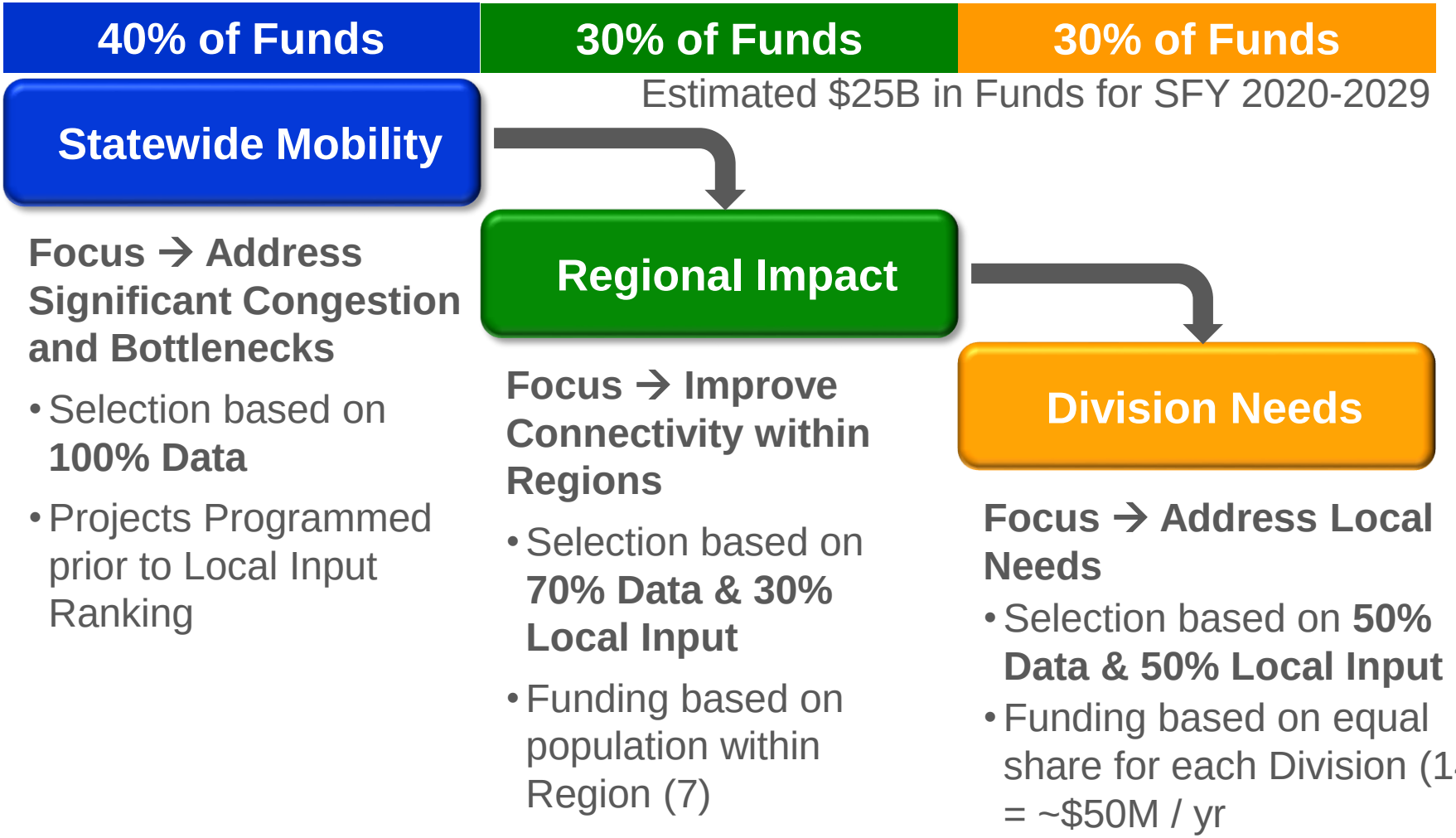
Annual Budget of approx. $5B ($2.5B for STI)

Key Partners

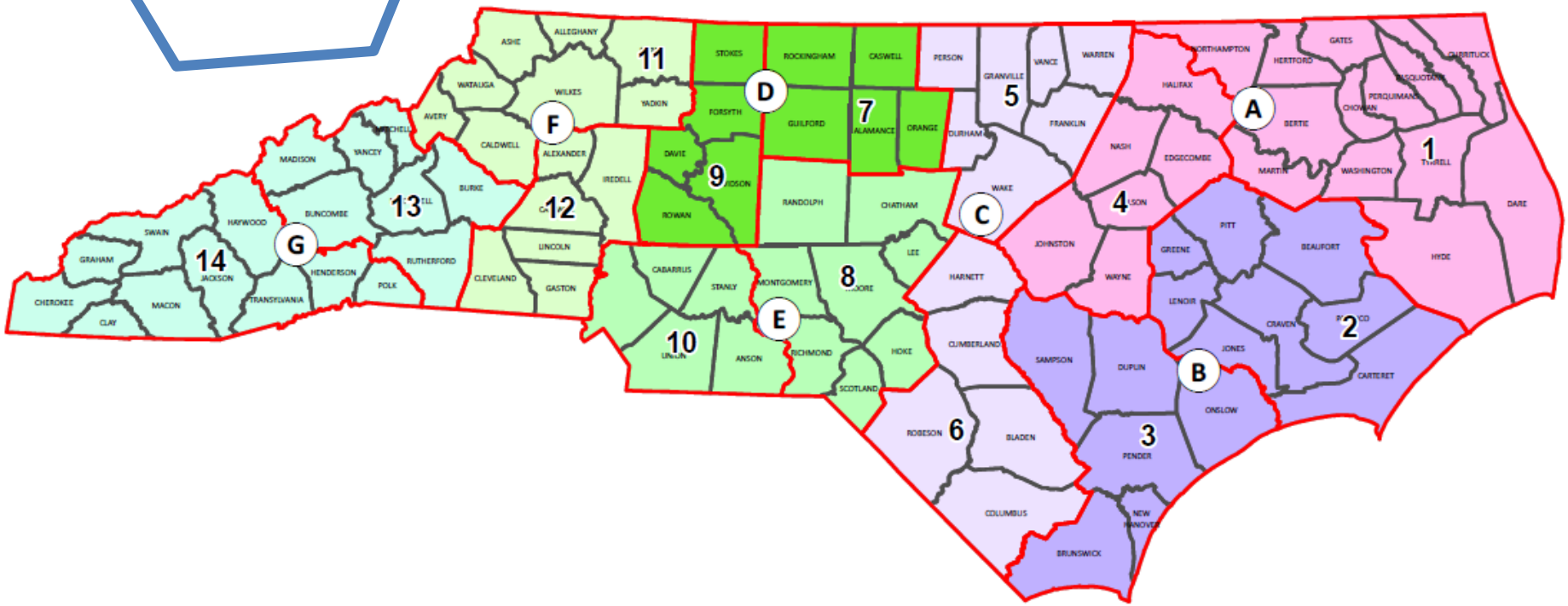


→ MPOs, RPOs, Divisions submit Projects ←

How STI Works



regions & divisions



Workgroup Purpose

Purpose

Provide recommendations to NCDOT on prioritization criteria, weights, and scoring process for all modes

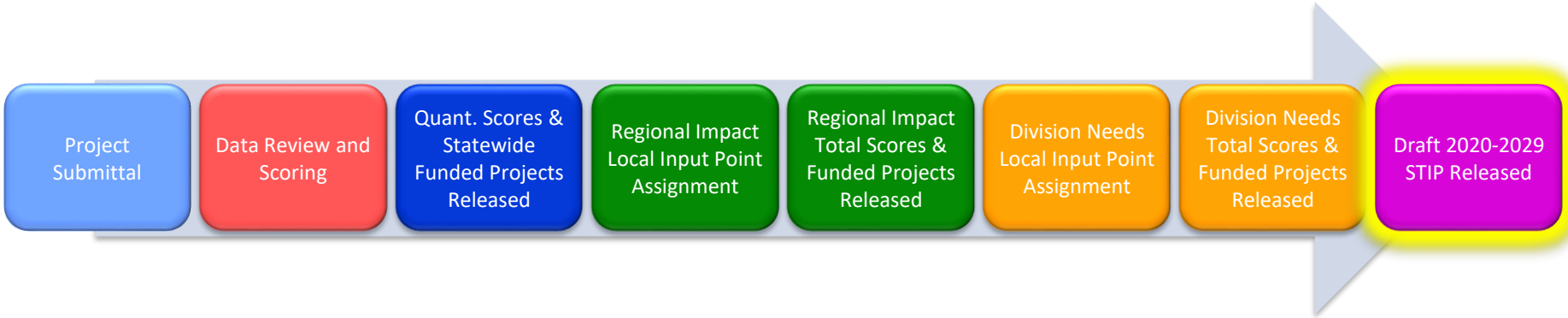
Members

Professional staff from MPOs, RPOs, local govt advocacy groups, and NCDOT

Member Responsibilities:

- Provide input to improve the scoring methodologies
- Serve as a liaison between Workgroup and their organization
- Work in a collaborative, consensus-driven manner

Project Scoring and Funding Process



Types of Projects in the STIP

Draft 2020-2029 STIP

Project Totals

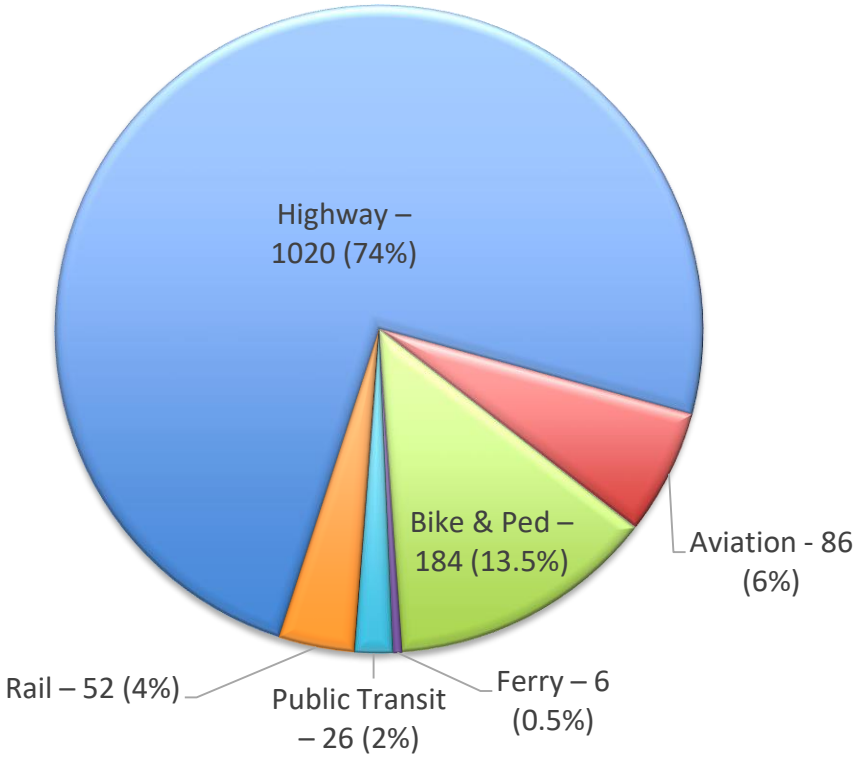
1833 Projects ($27.8B)

- 1417 Highway ($26.3B)
    - 1020 STI (Mobility/Modernization)
    - 322 Bridge, Interstate Maintenance, Safety
    - 75 Direct Attributable, CMAQ, Bonus Allocation

- 416 Non-Highway ($1.5B)
    - 354 STI
    - 62 Direct Attributable, CMAQ

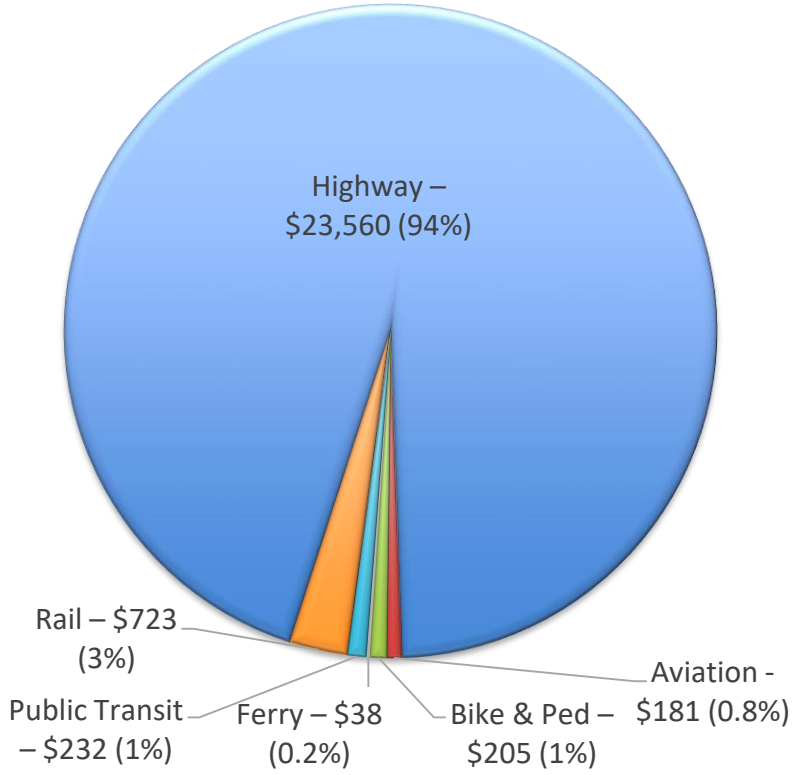
Projects in Draft 2020-2029 STIP Selected through STI

By Number of Projects (1374 Total)



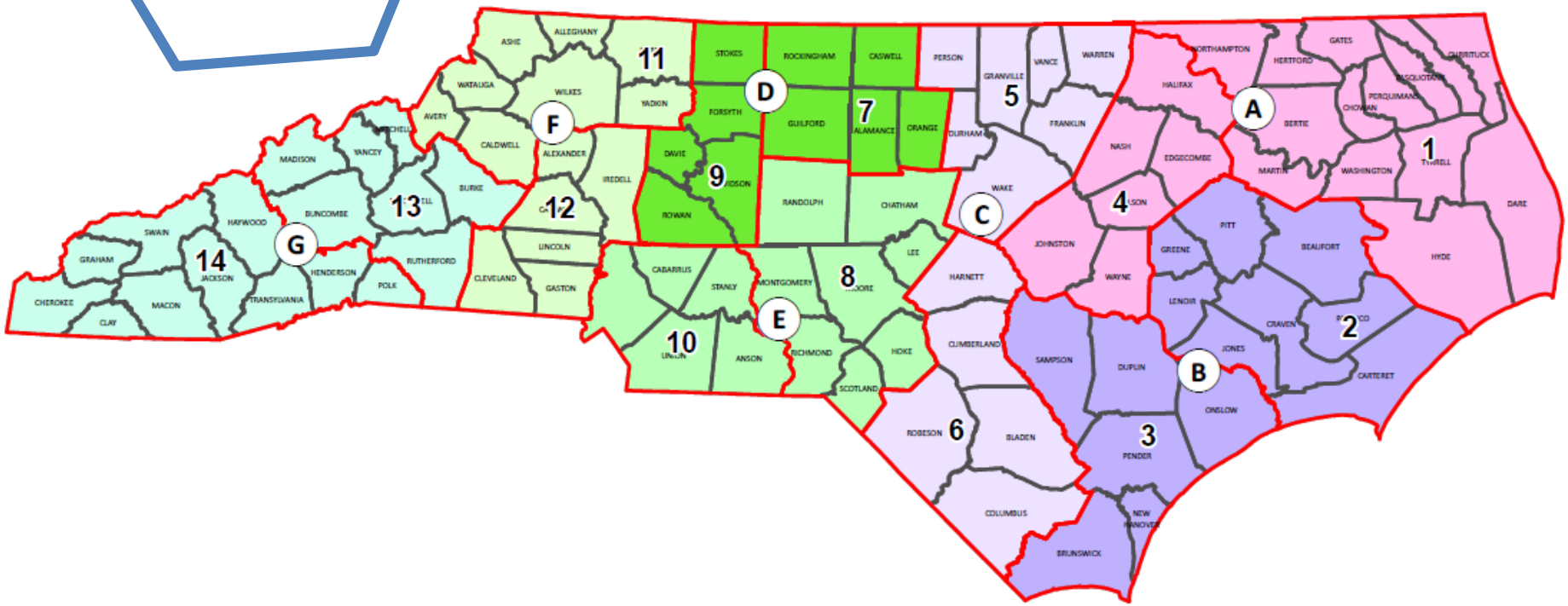
Hwy – 74%, Non-Hwy – 26%

By Programmed Amount ($M) ($24,939 Total)

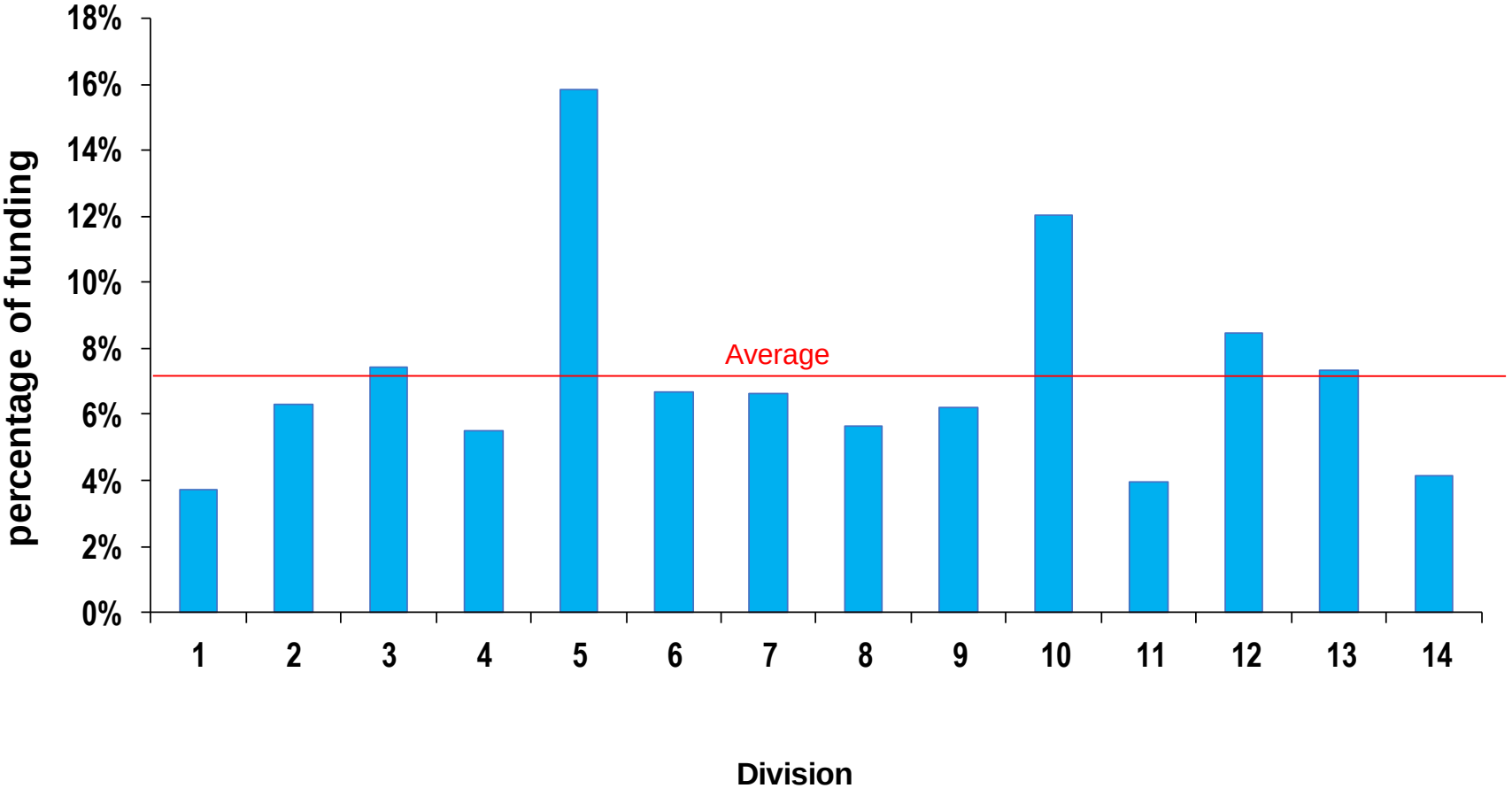


Hwy – 94%, Non-Hwy – 6%

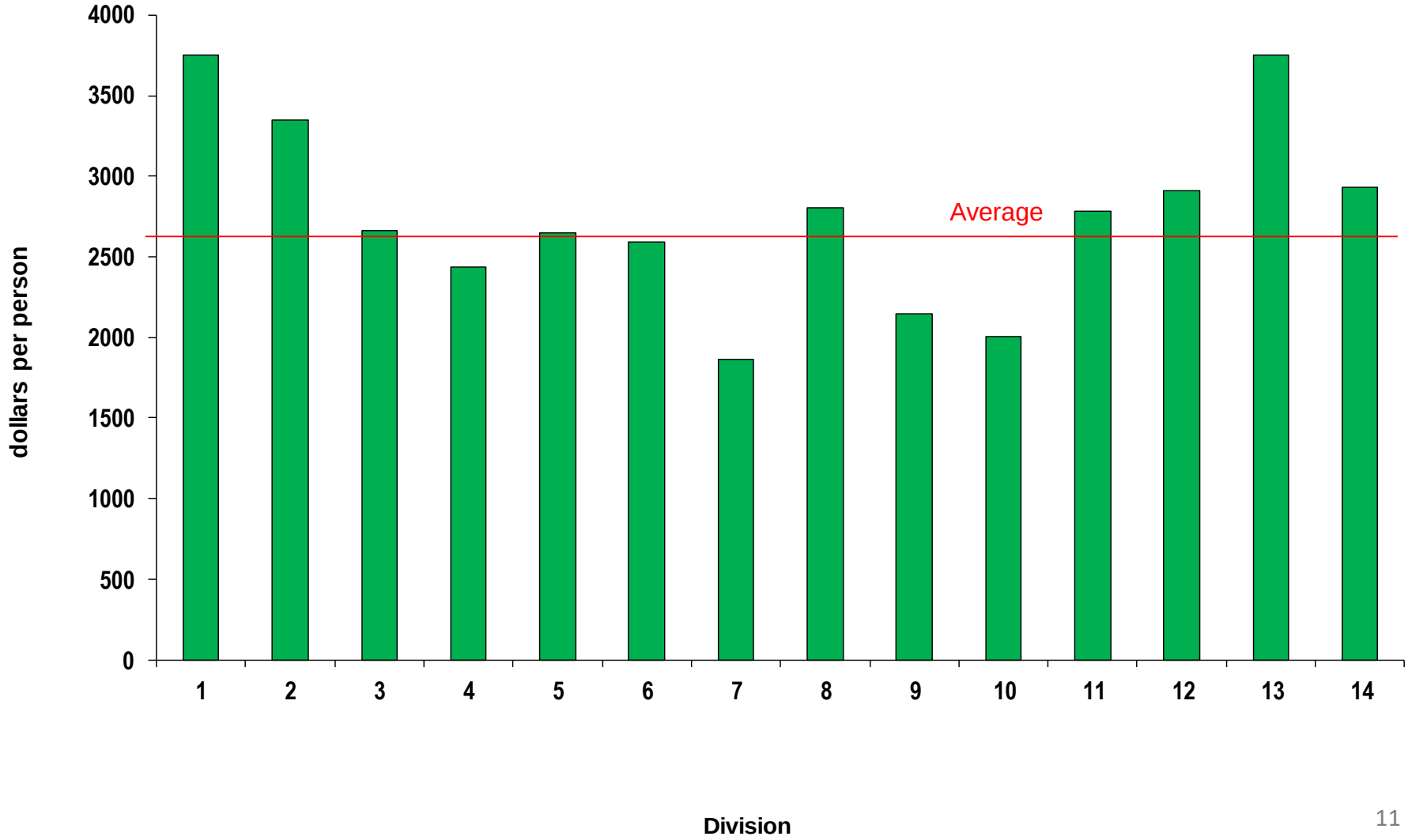
regions & divisions



FUNDING DISTRIBUTION BY DIVISION IN THE 2020-2029 DRAFT STIP



PER CAPITA FUNDING BY DIVISION IN THE 2020-2029 DRAFT STIP



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Project Delays in the Draft 2020-2029 STIP

Van Argabright, PE
Director
Division of Planning and Programming

February 2019

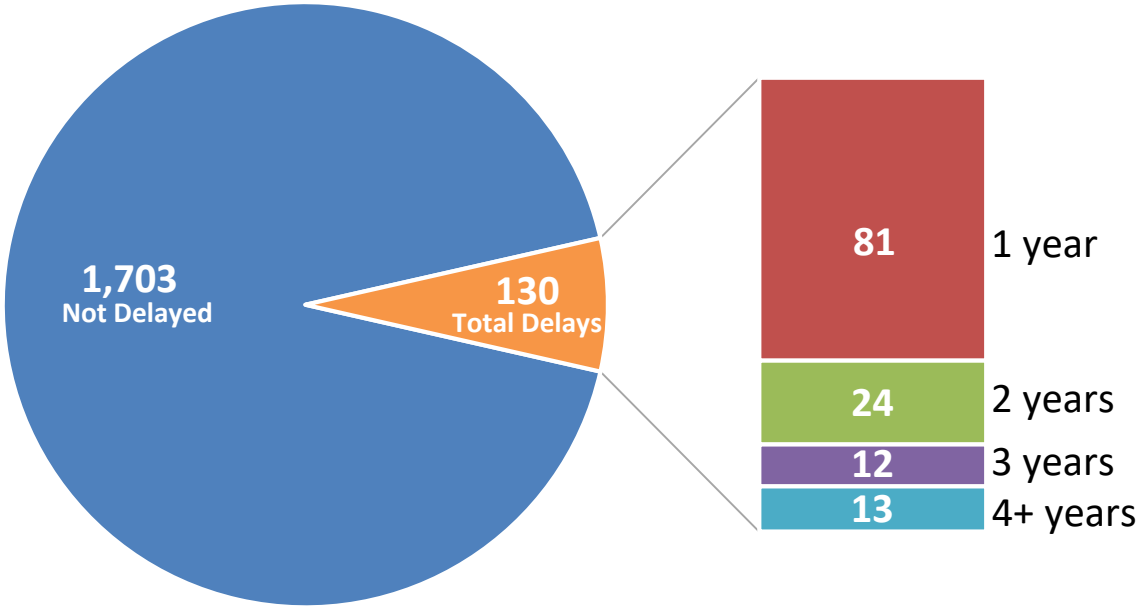
Draft 2020-2029 STIP

1,833 Total Projects

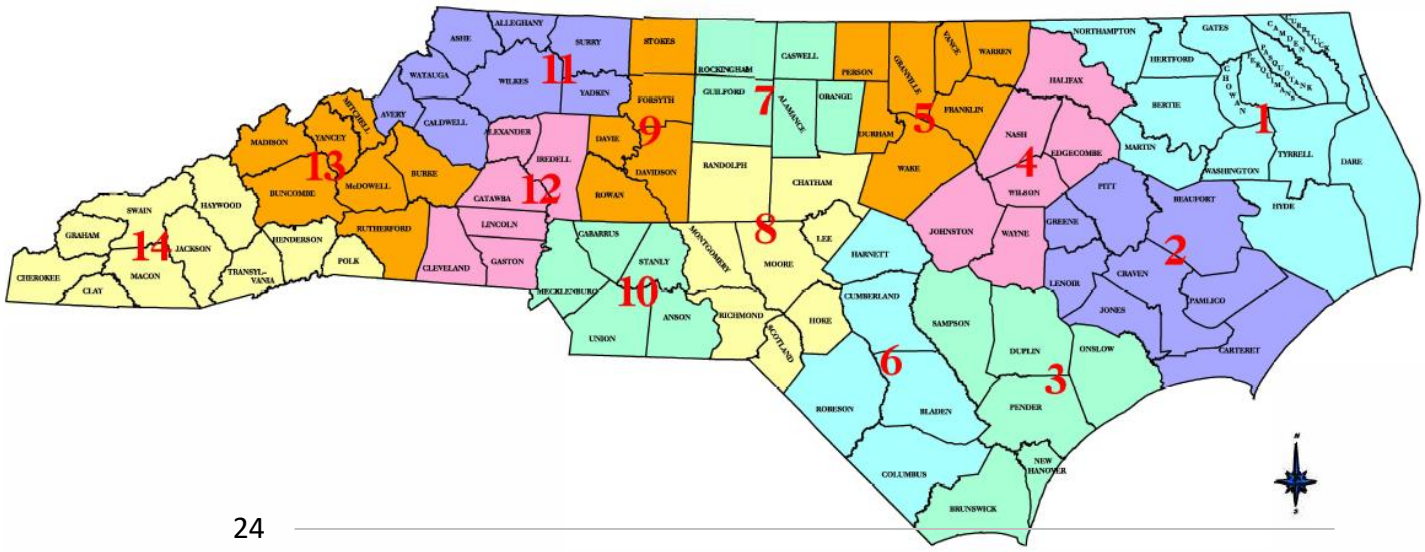
1,417 Highway projects

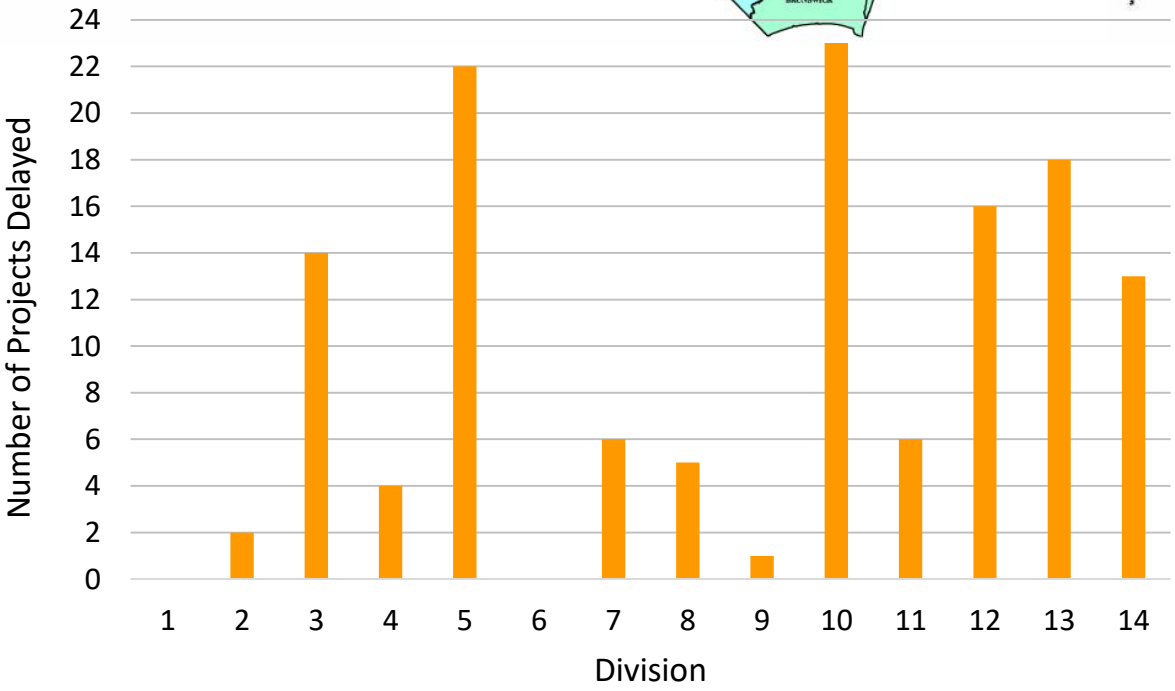
416 Non-Highway projects

Final 2018-2027 STIP		Draft 2020-2029 STIP
August 2017	130 Project Delays	January 2019



Delays by Division





Cost Increases by Category

Statewide Mobility

- $10.3B available for programming
- $910M in cost increases

Regional Impact

- $7.7B available for programming
- $836M in cost increases

Division Needs

- $7.7B available for programming
- $816M in cost increases

Cost increases as compared between Final 2018-2027 STIP and Draft 2020-2029 STIP

Causes of Cost Increases

Refined Project Scope

Cost Estimator

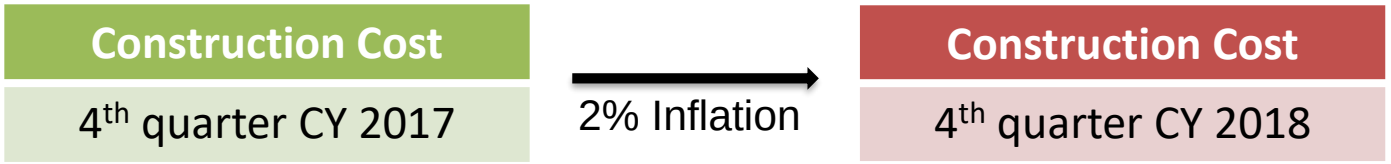
Inflation

Cost Increases Due to Refined Scope & Cost Estimator

- Pre STI:
  - Most projects had a feasibility study completed, providing project scope and cost estimate, before being programmed in the STIP
- Post STI:
  - STI scoring process caused new projects to move ahead of existing projects
  - New projects evaluated through the prioritization process had less details relative to project scope and estimate available
  - Frequently costs were determined using a high-level cost estimation tool developed by NCDOT
  - As these projects work their way through planning and design, more accurate scope and cost estimates are developed frequently resulting in increased costs

Cost Increases Due to Inflation

- Construction
  - Composite Construction Cost Index
  - Computed by NCDOT's Bid Monitoring and Data Analysis Office
  - Compare 4th quarter of CY 2017 to 4th quarter of CY 2018
  - Inflation approximately 2%



- Right-of-Way:
  - Difficult to determine inflation rate across the state
  - Location dependent
  - Growing areas will have greater right-of-way cost increases

Project Delay Considerations

- Status of Right-of-Way acquisition
- Amount over-programmed in each
  - Fiscal Year
  - Region
  - Division
- Corridor Caps

Funding Balance Scenario

	$20M Overprogrammed ⇩	At Capacity ⇩	At Capacity ⇩	Capacity Available ⇩
	FY 20	**FY 21**	**FY 22**	**FY 23**
Project A	$20M			
Project B		$20M		
Project C			$20M	

2 Solutions to Balance Funds

Funding Balance Scenario

Solution 1:

Project A is delayed 3 years

	FY 20	FY 21	FY 22	FY 23
Project A				$20M
Project B		$20M		
Project C			$20M	

Funding Balance Scenario

Solution 2:

Projects A, B & C are each delayed 1 year

	FY 20	FY 21	FY 22	FY 23
Project A	→	$20M		
Project B		→	$20M	
Project C			→	$20M

Minimizing Future Cost Increases to Prevent Project Delays

- Cost Containment Policy
  - Projects committed in the Draft 2020-2029 STIP selected through P5.0 exceeding certain scope and cost thresholds may result in being re-scored
- Improved cost estimates
  - Continually refine cost estimation tool
  - Express Designs prior to submittal
  - Project Scoping Reports

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Costs and Scope Improvements

Derrick Lewis, PE
Feasibility Studies Unit Head
Division of Planning and Programming

February 2019

STIP Project Cost Estimation Progression

	2016-2025 STIP (P3.0)	2018-2027 STIP (P4.0)	2020-2029 STIP (P5.0)	2022-2031 STIP (P6.0)
Prioritization Estimation Tool	No Urban vs. Rural Differentiation	Urban vs. Rural Differentiation	Tool Used only when more detailed estimate not available	Further Estimation Tool Refinement
Express Designs	None	Pilot Express Designs on 10 Projects	Express Designs on 200 Projects	Express Designs on all Newly Programmed Projects
Corridor Development Engineers (CDE)	Positions Did not Exist		Positions Being Filled	CDE's Review Cost Estimates

Current Initiatives

Express Design Evaluations

Project Scoping Reports

Express Design Evaluation

- Project Initiation
- Conceptual Designs
- Quantities & Cost Estimates
- Environmental Features Map

Express Design Submittal

If Funded in STIP

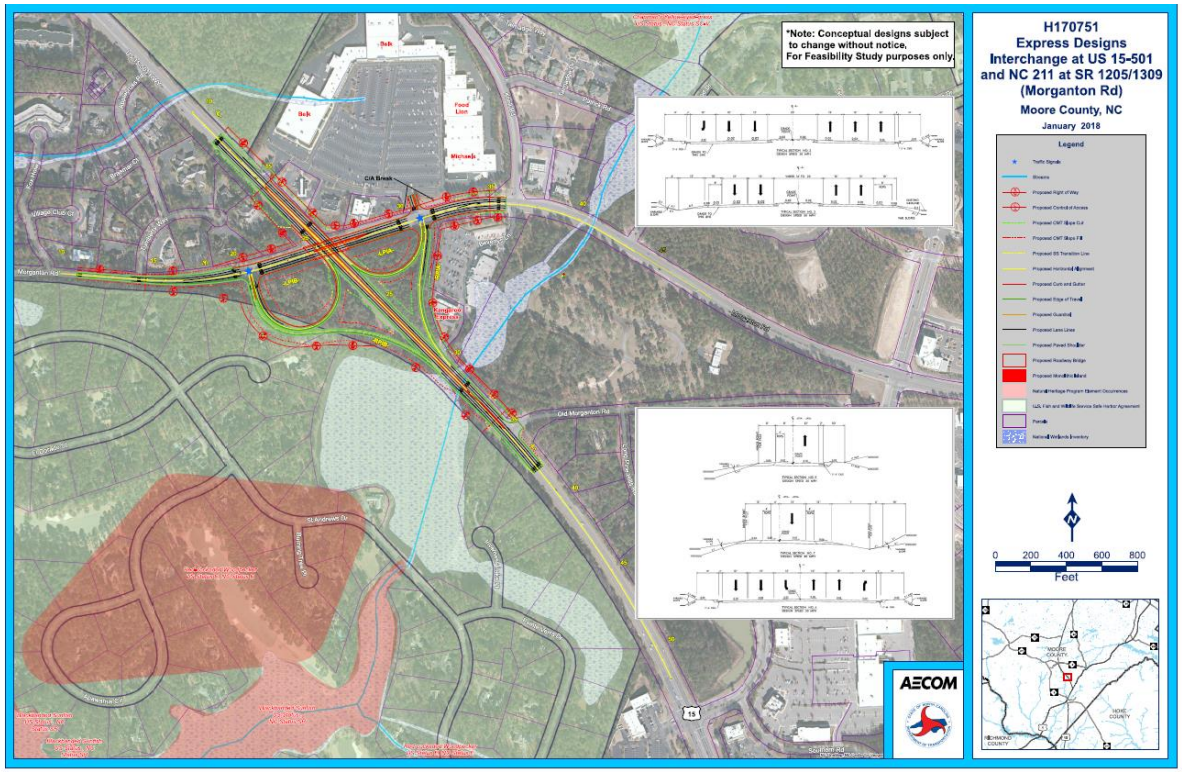
Project Scoping Reports

- Project Review
- Environmental Screening & Checklist
- Documentation
- Traffic Forecast
- Jump Start NEPA/SEPA

Project Scoping Report

Conceptual Design & Costs

- Conceptual Design Maps
  - Overlay conceptual design option(s)
  - Calculate quantities and Costs



EXPRESS DESIGN EVALUATION SUMMARY

SPOT ID: H171936 WILLIAMS ROAD (SR 1167) RE-ALIGNMENT	FACILITY: 2 - 12 FOOT LANES AND SINGLE LANE ROUNDABOUT	DIVISION: 2	FIRM: PARSONS

EXISTING FACILITY CHARACTERISTICS:	PROPOSED FACILITY CHARACTERISTICS:
Existing No. of Lanes: 2	Proposed No. of Lanes: 2
Existing Median: No	Addition of Median(s): No
Existing control of access:	Proposed control of access:
☒ No Control	☒ No Control
☐ Partial Control	☐ Partial Control
☐ Limited Control	☐ Limited Control
☐ Full Control	☐ Full Control
ADT: 8,700	ADT: 10,900
Structures:	Structures:
☐ Culvert(s)	☐ Culvert(s)
☐ Bridge(s)	☒ Bridge(s) - 100 ft x 39 ft Box beam

PROJECT DESCRIPTION: *(Include project scope and location, including Municipality and County. Refer to the attached project location map and photos.)*

H171936 - Williams Road (SR 1167) is located in Craven County, NC. The design includes a 2-lane typical section with a single lane roundabout to replace the existing intersection of Airline Drive and Williams Road. Scott Street (SR 1995) will be relocated to allow for a 90-degree intersection with Williams Street away from the proposed roundabout. See conceptual design for more details.

PRELIMINARY PURPOSE AND NEED:

Is there preliminary information on the purpose and need for the project included in a CTP, LRTP, or other study? If yes, summarize.

Purpose & Need: The Coastal Carolina Regional Airport would like to extend its runway to accept larger planes. Williams Road will need to be relocated before the runway can be extended.

COST ESTIMATES:

Construction: $3,500,000	Right of Way: $400,000
Utilities: $700,000	ITS: $0
Total Cost: $4,600,000	

FINDINGS AND RECOMMENDATIONS:

Note recommended document type and summarize findings from Screening Checklist.

Traffic Control – Most of this project can be built while maintaining traffic in its existing location. Some temporary pavement and temporary lane closures (with flaggers) will be necessary to tie things to the existing roads and to construct the roundabout.

After a preliminary environmental and GIS screening this project may have a slight impact during construction on local streams, specifically Scott Creek, and wetlands, but may qualify for a Type III CE project.

The proposed project will pass through several vacant lots and will require the relocation of some utilities.

Additional Features to Improve Project Delivery

- Initial mapping limits for Photogrammetry and Location & Surveys
- Constructability/Maintenance of traffic discussion
- Initial hydraulic review
- Environmental screening
- Initiate traffic forecast and crash analysis data

Private Engineering Firm (PEF) Utilization

- 2016 – Express Design Evaluation Pilot
  - Performed Internal Express Design Evaluation on 10 test projects
  - Developed Express Design Evaluation Process for PEFs
- 2017 – 35 PEFs under Contract
  - Executed Express Design Evaluation/Project Scoping Task orders with all PEFs
- 2019 – 49 PEFs under Contract
  - Execute Express Design Evaluation/Project Scoping Report with an additional 14 PEFs

Benefits

- Better define project scope and costs prior to prioritization
- Develop project schedule
- Jump start environmental planning process
- More documented project detail for future prioritization rounds

Questions?